What is claimed is:

1. A method for mapping surface topography of a substrate comprising:

forming a non-metallic film over a substrate;

forming a metal film over said non-metallic film;

polishing to remove at least a portion of said metal film; and

distinguishing first regions in which said metal film remains, from second regions in which said metal film has been removed and said non-metallic film is exposed.

2. The method as in claim 1, wherein said forming a non-metallic film over a substrate comprises forming a dielectric film over a semiconductor substrate.

3. The method as in claim 1, wherein said substrate includes at least one further film formed thereover, and said forming a non-metallic film comprises forming a dielectric film over said at least one further film.

4. The method as in claim 3, wherein said at least one further film includes a patterned polysilicon film and a polished interlevel dielectric film formed thereover.

5. The method as in claim 3, wherein said polishing and said distinguishing take place during in-line processing of semiconductor devices being formed on said substrate and further comprising generating topographical data of a surface of said substrate.

6. The method as in claim 1, wherein said forming a metal film comprises forming a copper film.

7. The method as in claim 1, wherein said polishing comprises chemical mechanical polishing (CMP).

8. The method as in claim 1, wherein said distinguishing includes using an interferometer to monitor optical signals directed to a top surface of said substrate.

9. The method as in claim 1, wherein said distinguishing is repeated periodically during said polishing.

10. The method as in claim 1, wherein said distinguishing is repeated substantially continuously during said polishing.

11. The method as in claim 10, wherein said distinguishing includes spatially distinguishing said first regions from said second regions a plurality of times during said polishing, and further comprising generating a three-dimensional topographical map of said substrate based on said distinguishing.

12. The method as in claim 1, wherein said distinguishing includes directing an optical signal to a top surface of said substrate and using an interferometer to detect one of a return refracted signal and a return reflected signal.

13. The method as in claim 12, wherein said directing an optical signal includes causing said optical signal to scan across said top surface.

14. The method as in claim 1, further comprising generating a map of substrate topography based on data obtained during said distinguishing.

15. The method as claim 14, further comprising instituting in-line process controls based on said map.

16. The method as in claim 14, wherein said first regions correspond to relatively depressed regions of said substrate and said second regions correspond to relatively raised regions of said substrate.

17. The method as in claim 1, wherein said substrate is generally round and includes a diameter of about 12 inches and said distinguishing includes monitoring optical signals directed to a plurality of locations, each of said plurality of locations separated from other of said plurality of locations by about 10-20 mm.

18. The method as in claim 1, wherein said substrate comprises a semiconductor substrate upon which a plurality of semiconductor devices are being

formed, and said distinguishing includes monitoring optical signals directed to a plurality of scribe lines between respective semiconductor devices of said plurality of semiconductor devices on said semiconductor substrate.

19. A method for mapping surface topography of a substrate comprising:

forming a non-reflective film over a substrate;
forming a reflective film over said non-reflective film;
polishing to remove at least a portion of said reflective film; and
distinguishing first regions in which said reflective film remains, from second regions in which said reflective film has been removed and said non-reflective film is exposed.

20. An apparatus for in-line monitoring of surface topography of a substrate comprising:

a body for receiving a substrate thereon;
polishing means for polishing a surface of said substrate; and
detecting means for detecting a presence or absence of a reflective film at a plurality of locations on said surface during said polishing operation.

21. The apparatus as in claim 20, wherein said detecting means comprise an optical system.

22. The apparatus as in claim 20, wherein said detecting means comprise an interferometer.

23. The apparatus as in claim 20, wherein said polishing means comprise a chemical mechanical polishing apparatus.

24. The apparatus as in claim 20, wherein said detecting means detects a presence or absence of said reflective film at a plurality of locations on said surface, several times during a polishing operation.

25. The apparatus as in claim 20, further comprising display means that provide an output indicative of topography of said substrate.

26. The apparatus as in claim 25, in which said display means is coupled to electronic circuitry that compares said output to pass/fail criteria.